

PATENT

Case Docket No. ASMMC.033AUS

Date: December 20, 2002

P/S
12/21/02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Kim et al.)
Appl. No. : 10/007,304)
Filed : December 5, 2001)
For : COPPER INTERCONNECT)
STRUCTURE HAVING)
STUFFED DIFFUSION)
BARRIER)
Examiner : Steven Rao)
Group Art Unit : 2812)

CERTIFICATE OF FAX TRANSMISSION

I hereby certify that this correspondence and all marked attachments are being facsimile transmitted via facsimile to Examiner Steven Rao, Fax No. (703) 746-3926 of the USPTO on the date shown below:

December 20, 2002

(Date)

Adeel S. Akhtar
Adeel S. Akhtar, Reg. No. 41,394

TRANSMITTAL LETTER

United States Patent and Trademark Office
P.O. Box 2327
Arlington, VA 22202

Dear Sir:

Enclosed for filing in the above-identified application are:

- (X) A Preliminary Amendment in 5 pages.
- (X) The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Account No. 11-1410.

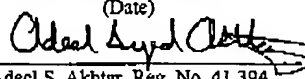
Adeel S. Akhtar
Adeel S. Akhtar
Registration No. 41,394
Attorney of Record
Customer No. 20,995
(415) 954-4114

W:\DOCS\ASA\ASA-13447.DOC
122002

ASMMC.033AUS

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Kim et al.	)	Group Art Unit 2812
)	
Appl. No.	:	10/007,304	)	CERTIFICATE OF FAX
			)	TRANSMISSION
)	
Filed	:	December 5, 2001	)	I hereby certify that this correspondence
			)	and all marked attachments are being
			)	transmitted via facsimile to Examiner
For	:	COPPER INTERCONNECT	)	Steven Rao, Fax No. (703) 746-3926 of
		STRUCTURE HAVING	)	the USPTO on the date shown below:
		STUFFED DIFFUSION)	
		BARRIER)	
			)	<u>December 20, 2002</u>
			)	(Date)
)	
Examiner	:	Steven Rao	)	Adeel S. Akhtar, Reg. No. 41,394

PRELIMINARY AMENDMENT

United States Patent and Trademark Office
P.O. Box 2327
Arlington, VA 22202

Dear Sir:

Prior to examination on the merits in the above-captioned patent application, please amend the application as indicated below:

IN THE CLAIMS:

Please amend Claims 43-46, 50 and 51 as indicated below:

43. (Amended) The diffusion barrier of Claim 35, wherein the metal compound is an oxide of the reactive metal.

44. (Amended) The diffusion barrier of Claim 43, wherein the metal compound is selected from the group consisting of aluminum oxide and silicon oxide.

45. (Amended) The diffusion barrier of Claim 35, wherein the metal compound is a nitride of the reactive metal.

46. (Amended) The diffusion barrier of Claim 45, wherein the metal compound is selected from the group consisting of aluminum nitride and silicon nitride.

Knobbe Martens Olson & Bear LLP*Intellectual Property Law*

201 California Street
Suite 1150
San Francisco CA 94111
Tel 415-954-4114
Fax 415-954-4111
knob.com

CONFIRMATION COPY WILL FOLLOW VIA:

- ☐ MAIL
☐ INTERNATIONAL AIRMAIL
☐ COURIER
☐ E-MAIL
☒ WILL NOT FOLLOW
☐ HAND DELIVERY
☐ WITH ENCLOSURES
☐ WITHOUT ENCLOSURES

Louis J. Knobbe*
Don W. Martens*
Gordon H. Olson*
James B. Bear
Darrell L. Olson*
William B. Bunker
William H. Neman
Arthur S. Rose
James F. Lesniak
Ned A. Israelsen
Drew S. Hamilton
Jerry T. Sewell
John B. Sganga, Jr.
Edward A. Schlatter
Gerard von Hoffmann
Joseph R. Re
Catherine J. Holland
John M. Carson
Karen Vogel Weil
Andrew H. Simpson
Jeffrey L. Van Hoeser
Daniel E. Altman
Marguerite L. Gunn
Stephen C. Jensen
Vito A. Canuso III
William H. Shreve
Lynda J. Zadra-Symes†
Steven J. Nalupaky
Paul A. Stewart
Joseph F. Jennings
Craig S. Summers
AnneMarie Kaiser
Brenton R. Babcock
Thomas F. Smegal, Jr.
Michael M. Trenholm
Diane M. Reed
Ronald J. Schoenbaum
John R. King
Frederick S. Borretta
Nancy W. Veneko
John P. Giesenlanner
Adel S. Akhtar
Ginger R. Dreger
Thomas R. Arno
David N. Welss
Daniel Hart, Ph.D.
Douglas G. Muehlhauser
Lori Lee Yamato
Michael K. Friedland
Dale C. Hunt, Ph.D.
Richard E. Campbell

Paul D. Tripodi II
Stacey R. Halpern
Lee W. Henderson, Ph.D.
Mark M. Abumeri
Jon W. Gurka
John W. Holcomb
Joseph M. Reisman, Ph.D.
Michael L. Fuller
Deborah S. Shepherd
Eric M. Nelson
Mark R. Benedict, Ph.D.
Paul N. Conover
Robert J. Roby
Sabine H. Lee
Karoline A. Delaney
James J. Mullen III, Ph.D.
Joseph S. Cianfrani
William R. Zimmerman
Glen L. Nuttall
Eric S. Furman, Ph.D.
Tirzah Abt Lowe
Sanjivpal S. Gill
Susan M. Natland
James W. Hill, M.D.
Rose M. Thiesen, Ph.D.
Michael A. Guilianna
Mark J. Kertz
Rabinder N. Narula
Bruce S. Itchikowitz, Ph.D.
Peter M. Midgley
Michael S. Okamoto
John M. Grover
Mallory K. De Merlier
Irfan A. Lalief
Sharon S. Ng
Mark J. Gallagher, Ph.D.
David G. Jankowski, Ph.D.
Brian C. Horne
Payson J. LeMellieur
Sheila N. Swaroop
Ben A. Katzenellenbogen
Linda H. Liu
Andrew N. Merickel, Ph.D.
Douglas T. Hudson
David L. Hauser
James F. Herkenhoff
Scott L. Murray
Andrew M. Douglas
Marc T. Morley
Salma A. Merani, Ph.D.
Sam K. Tahmassabi, Ph.D.

Christy L. Green
Jalal Sadr
Jonathan A. Hyman
Curtiss C. Dosler
Richard A. DeCristofaro
Donna O. Perdue, Ph.D.
Joseph J. Mellon, Ph.D.
Thomas P. Krzeminski
Jeffrey A. Blitchak
Sean M. Murray
Jason P. Florillo
Elenore Niu
Valerie L. Bracken
J. David Evered††
Johnlar F. Kerlee
Jeremy P. Sanders
Perry D. Oigham
Jarry L. Hefner, Ph.D.
Russell M. Jelde
Abraham W. Chuang
Ryan N. Farr
Pui Tong Ho
Erik T. Anderson
John L. Palk
Eric K. Morton
Jesse A. Rathwell
Marc C. Baumgartner
Ray B. Horn
Daniella Klausner
Kyle F. Schlueter
Raphael A. Guillerrez
Demian K. Jackson
Nathan A. Engels
Gregory A. Hermanson
Raymond Chan
Zi Y. Wong
John N. Kandara
Matthew S. Bellinger
Martin Hellebrandt
David K. Wiggins
Dorothy H. Sizensma
Lauren Keller
Melissa J. Aluman
Ted M. Cannon
Carol M. Pitzel
Lisa M. Sharrack
Joanne A. Villalta
Ryan C. Fox
Shelia R. Gibson
Andrew I. Kimmel
Miika Fukawa

Of Counsel
Jerry R. Seiler
Paul C. Steinhart

Japanese Patent Atty
Kazuhiro Arai
Tomohisa Sugiyama

Korean Patent Atty
Mincheol Kim
Heungsoo Choi

Scientists & Engineers
(Non-Lawyers)

Raimond J. Salenieks**
Khurram Rahman, Ph.D.
Tommy Y. Nagata
Che S. Choreskin, Ph.D.**
James W. Ausley**
Jennifer Hayes**
Kirk E. Pastorlan, Ph.D.**
Charles T. Ridgely
Bonny Yeung, Ph.D.
Connie C. Tong, Ph.D.**
Suzanne G. Jepson, Ph.D.
Megan M. McCoy**
Nira M. Brand
Catherine M. Sanders**
Jeffrey A. Hopkins
Tiffany C. Miller**
James W. Chang, Ph.D.
Marina L. Gordy, Ph.D.
Ed Desjardins, Ph.D.**
W. Frank Dauter
Lang J. McHardy**
Karen J. Lenker
Chris Westberg, Ph.D.
Eric B. Ives, Ph.D.**
David C. Weber**

* A Professional Corporation
† Also Barrister At Law (Cg & Wd) ** U.S. Patent Agent
†† Also Solicitor (Cg & Wd)

Facsimile Transmittal Sheet**Confidentiality Notice:**

The documents accompanying this facsimile transmission contain confidential information which may be legally privileged. The information is intended only for the use of the recipient named below. If you have received this facsimile in error, please immediately notify us by telephone to arrange for return of the original documents to us; and any disclosure, copying, distribution or the taking of any action in reliance on the contents of this faxed information is strictly prohibited.

TO: Examiner Steven Rao

OUR REFERENCE No.: ASMMC.033AUS

FIRM: U.S. Patent and Trademark Office

FACSIMILE TELEPHONE No.: (703) 746-3926

FROM: Adeel S. Akhtar, Reg. No. 41,394

SERIAL No.: 10/007,304

FILING DATE: December 5, 2001

ART UNIT: 2812

TOTAL NUMBER OF PAGES: 7 (INCLUDING COVER SHEET)

OPERATOR: Jonathan Pan

DATE: December 20, 2002

TIME:

IF YOU DID NOT RECEIVE ALL OF THE PAGES, PLEASE CALL BACK IMMEDIATELY.

Facsimile Operator Phone Number: (415) 954-4114

Direct Line to Machine: (415) 954-4111

MESSAGE: **PLEASE SEE ATTACHED**

CERTIFICATE OF FAX TRANSMISSION

I hereby certify that this correspondence and all marked attachments are being facsimile transmitted via facsimile to Examiner Steven Rao, Fax No. (703) 746-3926 of the USPTO on the date shown below:

December 20, 2002

Adeel S. Akhtar
Adeel S. Akhtar, Reg. No. 41,394

2040 Main Street
14th Floor
Irvine, CA 92614
Tel 949-750-0404
Fax 949-750-0477

550 West C Street
Suite 1200
San Diego CA 92101
Tel 619-235-8550
Fax 619-235-0176

1900 Avenue of the Stars
Suite 1425
Los Angeles CA 90067
Tel 310-551-3450
Fax 310-551-3450

3403 Tenth Street
Suite 700
Riverside CA 92501
Tel 909-781-9231
Fax 909-781-4507

1114 Marsh Street
San Luis Obispo CA 93401
Tel 805-547-5380
Fax 805-547-5590